

wall thickness at least equal to standard commercial pipe of the same diameter. Openings in dry pipes must be as near as practicable to the drum outlet and must be slotted or drilled. The width of the slots must not be less than 6mm (0.25 in.). The diameter of the holes must not be less than 10mm (0.375 in.). Where dry pipes are used, they must be provided with drains at each end to prevent an accumulation of water.

[CGD 81-79, 50 FR 9432, Mar. 8, 1985, as amended by USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

§ 52.01-110 Water-level indicators, water columns, gauge-glass connections, gauge cocks, and pressure gauges (modifies PG-60).

(a) *Boiler water level devices.* Boiler water level devices shall be as indicated in PG-60 of section I of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 52.01-1) except as noted otherwise in this section.

(b) *Water level indicators.* (Modifies PG-60.1.) (1) Each boiler, except those of the forced circulation type with no fixed water line and steam line, shall have two independent means of indicating the water level in the boiler connected directly to the head or shell. One shall be a gage lighted by the emergency electrical system (See subpart 112.15 of subchapter J (Electrical Engineering) of this chapter) which will insure illumination of the gages under all normal and emergency conditions. The secondary indicator may consist of a gage glass, or other acceptable device. Where the allowance pressure exceeds 1724 kPa (250 psi), the gage glasses shall be of the flat type instead of the common tubular type.

(2) Gage glasses shall be in continuous operation while the boiler is steaming.

(3) Double-ended firetube boilers shall be equipped as specified in this paragraph and paragraph (e) of this section except that the required water level indicators shall be installed on each end of the boiler.

(4) Externally fired flue boilers, such as are used on central western river vessels, shall be equipped as specified in paragraphs (b) (1) through (3) of this

section except that float gages may be substituted for gage glasses.

(c) *Water columns.* (Modifies PG-60.2.) The use of water columns is generally limited to firetube boilers. Water column installations shall be close hauled to minimize the effect of ship motion on water level indication. When water columns are provided they shall be fitted directly to the heads or shells of boilers or drums by 1 inch minimum size pipes with shutoff valves attached directly to the boiler or drums, or if necessary, connected thereto by a distance piece both at the top and bottom of the water columns. Shutoff valves used in the pipe connections between the boiler and water column or between the boiler and the shutoff valves, required by PG-60.6 of section I of the ASME Boiler and Pressure Vessel Code for gage glasses, shall be locked or sealed open. Water column piping shall not be fitted inside the uptake, the smoke box, or the casing. Water columns shall be fitted with suitable drains. Cast iron fittings are not permitted.

(d) *Gage glass connections.* (Modifies PG-60.3.) Gage glasses and gage cocks shall be connected directly to the head or shell of a boiler as indicated in paragraph (b)(1) of this section. When water columns are authorized, connections to the columns may be made provided a close hauled arrangement is utilized so that the effect of ship roll on the water level indication is minimized.

(e) *Gage cocks.* (Modifies PG-60.4.) (1) When the steam pressure does not exceed 250 pounds per square inch, three test cocks attached directly to the head or shell of a boiler may serve as the secondary water level indicator.

(2) See paragraph (d) of this section for restrictions on cock connections.

(f) *Pressure gages.* (Modifies PG-60.6.) Each double-ended boiler shall be fitted with two steam gages, one on either end on the boiler.

(g) *Salinometer cocks.* In vessels operating in salt water, each boiler shall be equipped with a salinometer cock or valve which shall be fitted directly to the boiler in a convenient position. They shall not be attached to the water gage or water column.

(h) *High-water-level alarm.* Each watertube boiler for propulsion must

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have an audible and a visible high-water-level alarm. The alarm indicators must be located where the boiler is controlled.

[CG FR 68-82, 33 FR 18815, Dec. 18, 1968, as amended by CGD 81-79, 50 FR 9433, Mar. 8, 1985; CGD 83-043, 60 FR 24772, May 10, 1995; USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

§ 52.01-115 Feedwater supply (modifies PG-61).

Boiler feedwater supply must meet the requirements of PG-61 of section I of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 52.01-1) and § 56.50-30 of this subchapter.

[USCG-2003-16630, 73 FR 65161, Oct. 31, 2008]

§ 52.01-120 Safety valves and safety relief valves (modifies PG-67 through PG-73).

(a)(1) Boiler safety valves and safety relief valves must be as indicated in PG-67 through PG-73 of section I of the ASME Boiler and Pressure Vessel Code (incorporated by reference; see 46 CFR 52.01-1) except as noted otherwise in this section.

(2) A safety valve must:

(i) Be stamped in accordance with PG-110 of section I of the ASME Boiler and Pressure Vessel Code;

(ii) Have its capacity certified by the National Board of Boiler and Pressure Vessel Inspectors;

(iii) Have a drain opening tapped for not less than 6mm ($\frac{1}{4}$ in.) NPS; and

(iv) Not have threaded inlets for valves larger than 51mm (2 in.) NPS.

(3) On river steam vessels whose boilers are connected in batteries without means of isolating one boiler from another, each battery of boilers shall be treated as a single boiler and equipped with not less than two safety valves of equal size.

(4) (*Modifies PG-70.*) The total rated relieving capacity of drum and superheater safety valves as certified by the valve manufacturer shall not be less than the maximum generating capacity of the boiler which shall be determined and certified by the boiler manufacturer. This capacity shall be in compliance with PG-70 of section I of the ASME Boiler and Pressure Vessel Code.

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(5) In the event the maximum steam generating capacity of the boiler is increased by any means, the relieving capacity of the safety valves shall be checked by an inspector, and, if determined to be necessary, valves of increased relieving capacity shall be installed.

(6) (*Modifies PG-67.*) Drum safety valves shall be set to relieve at a pressure not in excess of that allowed by the Certificate of Inspection. Where for any reason this is lower than the pressure for which the boiler was originally designed and the revised safety valve capacity cannot be recomputed and certified by the valve manufacturer, one of the tests described in PG-70(3) of section I of the ASME Boiler and Pressure Vessel Code shall be conducted in the presence of the Inspector to insure that the relieving capacity is sufficient at the lower pressure.

(7) On new installations the safety valve nominal size for propulsion boilers and superheaters must not be less than 38mm ($1\frac{1}{2}$ in.) nor more than 102mm (4 in.). Safety valves 38mm ($1\frac{1}{2}$ in.) to 114mm ($4\frac{1}{2}$ in.) may be used for replacements on existing boilers. The safety valve size for auxiliary boilers must be between 19mm ($\frac{3}{4}$ in.) and 102mm (4 in.) NPS. The nominal size of a safety valve is the nominal diameter (as defined in 56.07-5(b)) of the inlet opening.

(8) Lever or weighted safety valves now installed may be continued in use and may be repaired, but when renewals are necessary, lever or weighted safety valves shall not be used. All such replacements shall conform to the requirements of this section.

(9) Gags or clamps for holding the safety valve disk on its seat shall be carried on board the vessel at all times.

(10) (*Modifies PG-73.2.*) Cast iron may be used only for caps and lifting bars. When used for these parts, the elongation must be at least 5 percent in 51mm (2 inch) gage length. Nonmetallic material may be used only for gaskets and packing.

(b)(1) (*Modifies PG-68.*) Superheater safety valves shall be as indicated in PG-68 of section I of the ASME Boiler and Pressure Vessel Code except as noted otherwise in this paragraph.